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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number 09/854,092
Filing Date May 10, 2001
First Named Inventor Tony P. Chiang
Group Art Unit Unknown
Examiner Name Unknown

Total Number of Pages in This Submission

262

Attorney Docket Number PA1663US

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2 Copies of PTO-SB-08A, B

Remarks

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Carr & Ferrell, LLP Cust. No. 22830

Signature

Reg. No. 47,059

Date

June 29, 2001

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IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT(S): Tony P. Chiang, et al.
SERIAL NO.: 09/854,092
FILED: May 10, 2001
TITLE: Method and Apparatus for Improved Temperature Control
In Atomic Layer Deposition
EXAMINER: unknown
GROUP ART UNIT: unknown
ATTY.DKT.NO.: PA1663US

COMMISSIONER FOR PATENTS
WASHINGTON, D.C. 20231

INFORMATION DISCLOSURE STATEMENT
Under 37 C.F.R. §§ 1.56, and 1.97-1.98

SIR:

Pursuant to the provisions of 37 C.F.R. §§ 1.56 and 1.97-98 of the Rules of Practice in Patent Cases, enclosed herewith is form PTO-SB-08 listing several references, copies of which are enclosed. The Examiner is requested to make these references of official record in the application. The references cited may be material to examination of the application and are submitted in compliance with Applicants' duty of disclosure as defined by 37 C.F.R. § 1.56.

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No representation is made or intended as to the completeness of this list, nor is the inclusion of any reference on this list an admission that it is prior art or pertinent to this application.

Respectfully submitted,

Tony P. Chiang, et al.

Dated: JUNE 29 '01

By: 

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Substitute for form 1449A/PTO

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Sheet

1

of

2

Complete if Known

Application Number	09/854,092
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Filing Date	May 10, 2001
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First Named Inventor	Tony P. Chiang
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Group Art Unit	unknown
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Examiner Name	unknown
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Attorney Docket Number PA1663US

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code ² (if known)			
		4,534,842		Arnal et al.	08-13-1985	
		4,563,367		Sherman	01-07-1986	
		4,745,337		Pichot et al.	05-17-1988	
		5,061,838		Lane et al.	10-29-1991	
		5,102,687		Pelletier et al.	04-07-1992	
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		5,227,695		Pelletier, Jacques H. et al.	07-13-1993	
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		5,605,637		Shan et al.	02-25-1997	
		5,653,811		Chan	08-05-1997	
		5,666,023		Pelletier	09-09-1997	
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		5,916,365		Sherman	06-29-1999	
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		6,080,446		Tobe et al.	06-27-2000	
		6,103,304		Mizuno	08-15-2000	

FOREIGN PATENT DOCUMENTS

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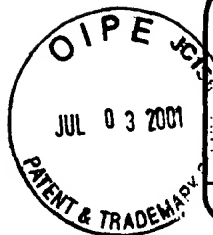
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Substitute for form 1449B/PTO		Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Application Number	
		Filing Date	May 10, 2001
		First Named Inventor	Tony P. Chiang
		Group Art Unit	unknown
		Examiner Name	unknown
		Attorney Docket Number	PA1663US
Sheet	2	of	2

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. 1	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		T.P. CHIANG, et al., "Ion-induced chemical vapor deposition of high purity Cu films at room temperature using a microwave discharge H atom beam source," Journal Vacuum Science Technology, Sep/Oct 1997, pg. 2677-2686, Vol. A 15(5), American Vacuum Society.	
		T.P. CHIANG, et al., "Surface kinetic study of ion-induced chemical vapor deposition of copper for focused ion beam applications," Journal Vacuum Science Technology, Nov/Dec 1997, pg. 3104-3114, vol. A 15(6), American Vacuum Society.	
		K.A. ASHTIANI, et al., "A New Hollow-Cathode Magnetron Source for 0.10um Copper Applications, Novellus Systems, Inc., San Jose, CA.	
		XIAOMENG CHEN, et al., "Low temperature plasma-promoted chemical vapor deposition of tantalum from tantalum pentabromide for copper metallization," Journal Vacuum Science Technology, Sep/Oct 1998, pg. 2887-2890, vol. B 16(5), American Vacuum Society.	
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		PER MARTENSSON, "Atomic Layer Epitaxy of Copper," Comprehensive Summaries of Uppsala Dissertations from the Faculty of Science and Technology, 1999, pg. 1-45, Acta Universitatis Upsaliensis, Uppsala, Sweden.	
		PER MARTENSSON, et al., "Atomic Layer Epitaxy of Copper on Tantalum," Chemical Vapor Deposition, 1997, pg. 45-50, vol. 3 no.1, Weinheim.	
		MIKKO RITALA, et al., "Controlled Growth of TaN, Ta ₃ N ₅ , and TaOxNy Thin Films by Atomic Layer Deposition," Chemical Materials, 1999, pg. 1712-1718, vol. 11 no. 7, American Chemical Society.	

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